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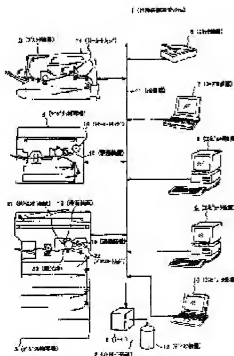
(54) PROCESSOR CONNECTING SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To efficiently exchange consumables by making the exchanging timing of the consumables of plural processors the same at a processor connecting system constituted by connecting each kind of the processor using the consumable of a toner cartridge or the like and each kind of a terminal instructing processing execution to the processor by a controller.

SOLUTION: When either of the toner cartridges 14 and 16 and a processing cartridge 22 used in the picture processors of a printer device 3, digital copying machines 4 and 5 or the like nearly ends its life, the controller 2 detects it and allocates a printing instruction outputted from the various kinds of the terminals of a

word processor 7, computer devices 8 and 9 or the like to either of the processors other than that where the life of the toner cartridge or the like nearly ends. Also, plural processors where the lives of the toner cartridges or the like nearly end simultaneously exist, the controller 2 centralizes the printing instructions outputted from the various kinds of the terminals to plural processors where the lives of the consumables nearly end.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the processing unit trusted system which two or more independent processing units, such as a copying machine, a printer, and a facsimile machine, are connected, and is operated by controller devices, such as computer paraphernalia.

[0002]

[Description of the Prior Art]Now, in the office, two or more processing units which perform image formation processings, such as a copy and printing, with an electrophotographing system, such as a copying machine, a printer, and a facsimile machine, are installed in many cases. In this kind of processing unit, for example like the image forming device shown in JP,62-44780,A, When two or more development counters of the same color are set and the developer in the hopper of a development counter becomes empty, there are some which were made to lengthen the replacement cycle of the consumable goods of a frequently-used development counter by changing to the development counter of other same colors. When consumable goods with which the processing unit is equipped, such as a toner cartridge and a process cartridge, reach an exchange life these days, Or when it becomes close to an exchange life, that is automatically notified to a service center via a communication line, and the thing provided with the function to demand a cartridge change from a serviceman is also provided.

[0003]

[Problem(s) to be Solved by the Invention]However, since an exchange demand is advanced from each processing unit whenever each toner cartridge and process cartridge reach an exchange life when two or more processing units provided with the above-mentioned function are installed in the office, The serviceman had to visit the office each time and there was a

problem of taking time and effort dramatically. This invention is made in light of the above-mentioned circumstances, and in claim 1. In the processing unit trusted system which connects the processing unit of the various kinds which use consumable goods, such as a toner cartridge and a process cartridge, and various kinds of terminal units which give processing execution instruction to these processing units with a controller device, Exchange time of the consumable goods of two or more processing units is made the same, and it aims at enabling it to exchange consumable goods efficiently. In claim 2, it makes it more reliable to make the same exchange time of the consumable goods of two or more processing units, and aims at improving effectiveness more. In claim 3, while making the same exchange time of the consumable goods of two or more processing units, the user of a terminal unit is told about two or more processing units being in the exchange time of consumable goods, and it aims at exchange of consumable goods being made to be ensured.

[0004]

[Means for Solving the Problem]In order to solve an aforementioned problem, in the invention according to claim 1. In a processing unit trusted system which connects a processing unit of various kinds which use consumable goods, and various kinds of terminal units which give processing execution instruction to these processing units with a controller device, When either of the consumable goods currently used with the above-mentioned processing unit becomes close to the life, The above-mentioned controller device detects this and processing execution instruction outputted from various kinds of above-mentioned terminal units was distributed to ones other than a processing unit with which a life of consumable goods became near of processing units. When two or more processing units with which a life of the above-mentioned consumable goods became near exist simultaneously in the processing unit trusted system according to claim 1 in the invention according to claim 2, the above-mentioned controller device, A life of the above-mentioned consumable goods centralizes processing execution instruction outputted from various kinds of above-mentioned terminal units on two or more processing units which became near. In the processing unit trusted system according to claim 1 or 2 the invention according to claim 3, When a life of the above-mentioned consumable goods becomes near or two or more processing units which reached a life exist simultaneously, said controller device displays that or more on one of terminal units connected to this.

[0005]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described with reference to drawings.

<<Configuration explanation used in common by each embodiment>> Drawing 1 is an outline lineblock diagram showing an example of the embodiment of a processing unit trusted system for this invention. The processing unit trusted system 1 shown in this figure The controller

device 2 and the printer (processing unit) 3, The two digital copiers (processing unit) 4 and 5 and scanner devices 6 (terminal unit), The word processor device 7 (terminal unit) and the three computer paraphernalia 8-10 (terminal unit), It has the path cord 11, and with the controller device 2, the coordinated movements of the printer 3 - the computer paraphernalia 10 are carried out, and incorporation processing of image data, processing treatment of image data, word processing of various data form, print-out processing, etc. are performed. Under the present circumstances, when either the toner cartridges 14 and 16 which are the consumable goods set to these printers 3 and the digital copiers 4 and 5, and the process cartridge 22 become close to that endurance life, The print instruction (processing execution instruction) from the scanner device 6, the word processor device 7, the computer paraphernalia 8-10, etc. is distributed to ones other than the processing unit with which the endurance life of consumable goods became near of processing units, and the exchange time of consumable goods is coincided. In this case, the disk unit 12 for which the above-mentioned controller device 2 is used as memory storage, It has information and the server 13 which becomes a source of release of instructions to each part of a system, and with the path cords 11, such as a cable, it is connected to the above-mentioned printer 3 - the computer paraphernalia 10, and the coordinated movements of these printers 3 - the computer paraphernalia 10 are carried out.

[0006]The printer 3 is in the state where the toner cartridge 14 was set, When print instruction is taken out from the above-mentioned controller device 2 via the path cord 11, Based on the print information supplied, it prints with this print instruction, Based on detection results, such as a reflection type sensor (P sensor) attached near [which was set to the toner cartridge 14] the detection result of a piezoelectric sensor (toner detecting sensor), or the photo conductor, etc., The toner amount of the above-mentioned toner cartridge 14 is detected, and when the toner in the time (toner near end) of the toner in this toner cartridge 14 decreasing or the above-mentioned toner cartridge 14 is lost (toner end), this is detected and it notifies to the above-mentioned controller device 2.

[0007]The digital copier 4 is in the state where the toner cartridge 16 was set in the developer 15, When the target manuscript is set, and print instruction is inputted or it ** by taking out print instruction from the above-mentioned controller device 2 via the path cord 11, It prints based on the print information acquired by reading the image of a manuscript, or the print information supplied with the above-mentioned print instruction. When facsimile transmission instruction is supplied, the contents of a transmission document supplied with this facsimile transmission instruction are incorporated, and facsimile transmission is given to the transmission destination connected to the facsimile circuit 17 (refer to drawing 2). Based on detection results, such as a reflection type sensor (P sensor) attached in parallel to this operation near [which was set to the toner cartridge 16] the detection result of a piezoelectric sensor (toner detecting sensor),

or the photo conductor, etc., The toner amount of the above-mentioned toner cartridge 16 is detected, and when the toner in the time (toner near end) of the toner in this toner cartridge 16 decreasing or the above-mentioned toner cartridge 16 is lost (toner end), this is detected and it notifies to the above-mentioned controller device 2.

[0008]The digital copier 5 is provided with the process cartridge 22 which made the electrification unit 18, the developer 19, the photo conductor 20, the cleaning device 21, etc. unite with the inside of a box, When the manuscript used as a copy object is set, and print instruction is inputted or it ** by taking out print instruction from the above-mentioned controller device 2 via the path cord 11, It prints based on the print information acquired by reading the image of a manuscript, or the print information supplied with the above-mentioned print instruction. Based on detection results, such as a reflection type sensor (P sensor) attached in parallel to this operation near [which was set to the process cartridge 22] the detection result of a piezoelectric sensor (toner detecting sensor), or the photo conductor 20, etc., When the toner amount of the above-mentioned process cartridge 22 is detected and the toner in this process cartridge 22 decreases (toner near end), When the toner in the above-mentioned process cartridge 22 is lost (toner end) and a developer etc. are lost, this is detected and it notifies to the above-mentioned controller device 2. Whenever it performs print operation, when use number of sheets is counted and the life of the electrification unit 18, the developer 19, the photo conductor 20, the cleaning device 21, etc. comes based on this counted result, this is detected and it notifies to the above-mentioned controller device 2.

[0009]When the manuscript used as a reading object was set, and reading directions are inputted, It curses and reading directions are supplied via the path cord 11, the scanner device 6 reads the image of the manuscript set, and supplies the image information obtained by this to the above-mentioned controller device 2. The word processor device 7 supplies the memorized document information to the above-mentioned controller device 2, when a document is drawn up and high-speed printing directions of a document are inputted based on the contents of operation of a keyboard. Each computer paraphernalia 8-10 are respectively connected to the above-mentioned controller device 2 via the path cord 11, When processing which draws up a document, processing which processes data, etc. are performed based on the contents of operation of a keyboard and high-speed printing directions of a document are inputted, the memorized document information is supplied to the above-mentioned controller device 2.

[0010]<Explanation of a 1st embodiment of operation>> Next, operation of the 1st example of an embodiment of the processing unit trusted system by this invention is explained, referring to the outline lineblock diagram shown in drawing 1, the block diagram shown in drawing 2, and the flow chart shown in drawing 3. By first, the printer 3, either of each digital copiers 4 and 5, and the control section 23 provided in this printer 3 as the toner of the above-mentioned printer

3 decreased, for example and it was shown in drawing 2. If this is detected (step ST1) and a toner near end detection signal, i.e., the signal which shows that the toner cartridge 14 became close to an exchange life, is transmitted to the controller device 2, This is incorporated by this controller device 2 (step ST2), and the information that the above-mentioned printer 3 is a toner near end is registered into the disk unit 12 (step ST3). Then, if a print command is outputted from each above-mentioned scanner device 6, word processor device 7 or computer paraphernalia 8-10, and the computer paraphernalia 8, While this is incorporated by the controller device 2 (step ST4), it is confirmed whether the output destination change is specified compulsorily (step ST5), If there is no such specification (it is No at step ST5), based on the contents registered into the disk unit 12, Since the printer 3 is a toner near end in the arbitrary processing unit which is not a toner near end, i.e., this case, the above-mentioned print command is transmitted to either of the two digital copiers 4 and 5, and a print is performed (step ST7, ST8).

[0011] If the output destination change is compulsorily specified at this time (it is Yes at step ST5), As opposed to the imaging device 4 compulsorily specified by the controller device 2, for example, a digital copier, The above-mentioned print command is transmitted and a print is performed (step ST6), In the procedure of choosing an imaging device as the order near [if there is no imaging device which is a toner near end (it is No at step ST7)] the priority set up beforehand and the device which emitted print instruction, for example. The imaging device used as a print processing object is chosen, the above-mentioned print command is transmitted to this imaging device, and a print is performed (step ST9). Then, the above-mentioned computer paraphernalia 8 which emitted print instruction are received with the controller device 2, Situation display information is supplied, information, including "being under output etc. in a printer now" etc., is displayed on the indicator 24 of these computer paraphernalia 8, and the information on an output destination change is told to a user (step ST10). Thereby, the user can know to which processing unit the print instruction which he took out was outputted. Therefore, although the printer 3 is in the device which emitted print instruction at the nearest position when print instruction is taken out without specifying an output destination change for example, When print instruction is outputted to the digital copier 4 or 5, it can know that the toner of the printer 3 has run short. As a result, since the generating picture by specifying the printer 3 as an output destination change is avoided as much as possible, the period to the exchange life of the toner cartridge 14 of the printer 3 is prolonged. In contrast, the period to the exchange life of the toner cartridge 16 and the process cartridge 22 with which each was equipped with other imaging devices 4 and 5 which the output signal increased from usual, i.e., digital copiers, is shortened. As a result, the exchange life stage of the toner cartridge 16 of the exchange life stage of the toner cartridge 14 of the printer 3 and other processing units 4 and 5, i.e., digital copiers, and the process cartridge 22 turns into the

period mostly. Therefore, if it is the office which adopted the processing unit trusted system of this embodiment, a serviceman by 1 time of visit to an office. Since the consumable goods 14 and 16 of the printer 3, the digital processing device 4, and two or more processing units of 5 grades, i.e., toner cartridges, the process cartridge 22, etc. can be exchanged now, consumable-goods exchange service can be performed efficiently.

[0012]<<Explanation of the example of the 2nd gestalt of operation>> Next, a 2nd embodiment of this invention is described with reference to drawing 1, drawing 2, and drawing 4. Like a 1st embodiment of the above, the toner cartridge 14 of the printer 3 becomes close to a life, and presupposes that print instruction was able to distribute to processing units other than printer 3. At this time, as mentioned above, output number of sheets increases the processing unit 4 which print instruction was able to distribute, for example, a digital copier, from the time of operation of the printer 3, and the toner cartridge 16 with which the digital copier 4 was equipped finally also approaches a life. As a result, the controller device 2 will receive the signals that the toner cartridges 14 and 16 which are consumable goods are close to a life simultaneously, from two sets of the printer 3 and the processing units of the digital copier 4. When the signal that consumable goods are close to a life is simultaneously emitted from two or more processing units as mentioned above, in a 2nd embodiment the controller device 2, Distribution of print instruction other than the processing unit which emitted the notification signal that consumable goods were close to a life is stopped, and print instruction is centralized on the printer 3 and the digital copier 4 in the processing unit which has emitted the above-mentioned notification signal, and the above-mentioned example.

[0013]Hereafter, operation of this 2nd embodiment is explained according to the flow chart shown in drawing 4. First, based on the printer 3, either of each digital copiers 4 and 5, and the information on the use number-of-sheets counter set in the printer 3 in which the toner cartridge 14 was built, for example, The print number of sheets after exchanging for the above-mentioned toner cartridge 14 becomes close to the life number of sheets set up beforehand. For example, (when it remains to a setting-out life and becomes about 100 sheets), by the control section 23 provided in this printer 3 as shown in drawing 2. If the detection signal which this is detected (step ST11) and shows that a life is close to the controller device 2 is transmitted, This is incorporated by this controller device 2 (step ST12), and the information that the life of the toner cartridge 14 provided in the above-mentioned printer 3 is near is registered into the disk unit 12 (step ST13). Then, each above-mentioned scanner device 6, word processor device 7, or computer paraphernalia 8-10. For example, if print instruction is outputted from the computer paraphernalia 8 (it is Yes at step ST14), while this will be incorporated by the controller device 2, It is confirmed whether the output destination change is specified compulsorily (step ST15), If there is no such specification (it is No at step ST15), it will be investigated whether based on the contents registered into the disk unit 12, there is any

processing unit which is a toner near end (step ST17). In this case, it is investigated whether there are two or more processing units which judge it as those with a toner near end since the printer 3 is a toner near end (it is Yes at step ST17), next have become a toner near end (step ST18).

[0014]As a result, only in one set, i.e., this case, if the processing unit which is a toner near end is only the printer 3 (it is No at step ST18), Since the printer 3 is a toner near end in the arbitrary processing unit which is not a toner near end, i.e., this case, the above-mentioned print instruction is transmitted to either of the two digital copiers 4 and 5 which remain, and a print is performed (step ST20). On the other hand, when there are two or more processing units which are toner near ends, by (step ST18 Yes), A processing unit which suspends processing of above-mentioned step ST20 and has become the present toner near end, For example, when the digital copier 4 is a toner near end, to the printer 3 and the digital copier 4. When the digital copier 5 becomes a toner near end ahead of the digital copier 4, print instruction is centralized on the printer 3 and the digital copier 5, and it distributes to them (step ST19). By this, with the processing unit of others [sets / of the aforementioned processing units with which print instruction was concentrated / two], the toner cartridge or process cartridge which is the consumable goods with which the inside was equipped almost simultaneous in the form which was able to be carved will reach a life.

[0015]It is made to make it concentrate on two or more processing units which are toner ends according to the priority set up beforehand one by one, or may be made to distribute the print instruction in step ST19 to the processing unit of these plurality uniformly. If the output destination change is compulsorily specified at this time (step ST15), As opposed to the imaging device 3 compulsorily specified by the controller device 2, for example, a printer, If there is no device which the above-mentioned print instruction is transmitted (step ST16), and has become a toner near end (it is No at step ST17), In the procedure of choosing a processing unit as the order near the priority set up beforehand and the device which emitted print instruction, for example, the processing unit which performs print processing is chosen, the above-mentioned print instruction is transmitted to this processing unit, and a print is performed (step ST21). Then, with the controller device 2, to the above-mentioned computer paraphernalia 8 which emitted print instruction, the information on a device that a print output is performed is transmitted (step ST22), and information, including "being under output etc. in a printer now" etc., is displayed on the indicator 24 of these computer paraphernalia 8. Thus, in a 2nd embodiment, since the life of consumable goods, such as a toner cartridge, centralizes print instruction on two or more near processing units and it was made to distribute to them, the consumable goods of two or more processing units can reach a life simultaneously certainly rather than the case of a 1st embodiment.

[0016]<<Explanation of the example of the 3rd gestalt of operation>> Next, a 3rd embodiment

of this invention is described. Drawing 5 is a flow chart which shows a 3rd embodiment of this invention, and each steps ST31-ST42 of the flow chart shown in the figure are used for explanation of a 2nd embodiment, and are equivalent to each steps ST11-ST22 in drawing 4, respectively. As opposed to the terminal unit which emitted print instruction in this 3rd embodiment, After transmitting the information on a processing unit that a print output is performed (step ST42), If there are two or more processing units which are toner near ends (it is Yes at step ST43), the controller device 2 sends out a consumable-goods exchange requirement signal to at least two or more terminal units 8 and 9, for example, computer paraphernalia, (step ST44). Thereby, on the indicator 24 and 27 of the computer paraphernalia 8 and 9, message information, such as "please exchange the toner cartridge of the printer 3 and the digital copier 4", is displayed. Thus, when the signal which shows that the life of consumable goods is simultaneously near from two or more processing units by a 3rd embodiment is emitted, Since it was made to display the message which sends out a consumable-goods exchange requirement signal to at least one or more of the terminal units in a processing unit trusted system from the controller device 2, and stimulates exchange of consumable goods, such as a toner cartridge, Many and unspecified workers can be told about the consumable goods of two or more specific processing units being in exchange time. By demanding exchange of consumable goods from many and unspecified workers, it can cope with demanding a serviceman's visit from a service company, or exchanging for spare consumable goods etc. promptly. The name recognition of the consumable goods of two or more processing units being in exchange time increases, and management of urging a serviceman's visit comes to be more promptly performed, so that there are many devices which receive the consumable-goods exchange requirement signal from the controller device 2. When consumable goods, such as a process cartridge, reach a life, it may be made to emit the above-mentioned consumable-goods exchange requirement signal. In an above embodiment. Various kinds of image formation processors, such as a printer which uses consumable goods, such as a toner cartridge and a process cartridge, and a copying machine, and various kinds of terminal units, such as a word processor device, computer paraphernalia, etc. which give print instruction, to these image formation processors with a controller device. Although the case where it applied to the processing unit trusted system to connect was shown, This invention is applicable also to the processing unit trusted system which connects the processing unit of the various kinds which use the consumable goods of not only this but others, and various kinds of terminal units of others which give processing execution instruction to these processing units with a controller device.

[0017]

[Effect of the Invention]As explained above, this invention does the following outstanding effects so. In the processing unit trusted system which connects the processing unit of the

various kinds which use consumable goods, and various kinds of terminal units which give processing execution instruction to these processing units with a controller device in the invention according to claim 1, When either of the consumable goods currently used with the above-mentioned processing unit becomes close to the life, Since the processing execution instruction which detects this with the above-mentioned controller device, and is outputted from various kinds of above-mentioned terminal units was distributed to ones other than the imaging device with which the life of consumable goods became near of imaging devices, In order for the consumable goods of two or more processing units to reach a life mostly at the same stage, it can carry out by the ability to summarize exchange of the consumable goods of two or more processing units, and clearing work can be performed efficiently. In the processing unit trusted system according to claim 1 by the invention according to claim 2, When two or more processing units with which the life of the above-mentioned consumable goods became near exist simultaneously, The above-mentioned controller device by centralizing the processing execution instruction outputted from various kinds of above-mentioned terminal units on two or more processing units with which the life of the above-mentioned consumable goods became near, In making it more reliable to make the same exchange time of the consumable goods of two or more processing units, and improving effectiveness more, and the invention according to claim 3. When the life of the above-mentioned consumable goods becomes near or two or more processing units which reached the life exist simultaneously in the processing unit trusted system according to claim 1 or 2, Said controller device by displaying that or more on one of the terminal units connected to this, Many and unspecified workers can be told about being in the consumable-goods exchange time of two or more specific processing units, and management of demanding a serviceman's visit from a service company, or exchanging for spare consumable goods can be ensured [promptly and].

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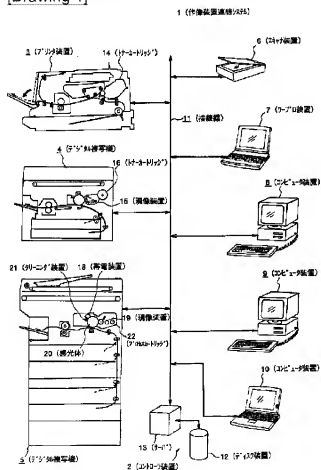
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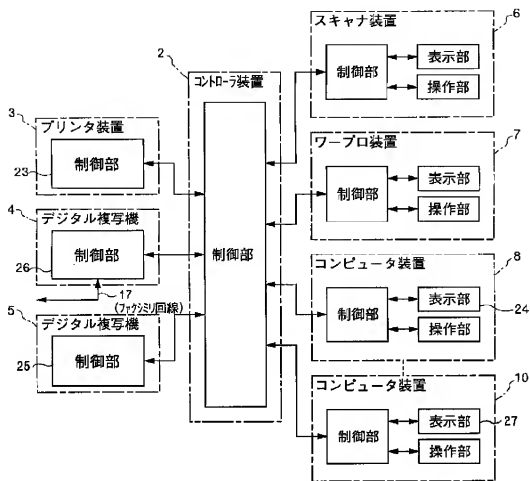
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DRAWINGS

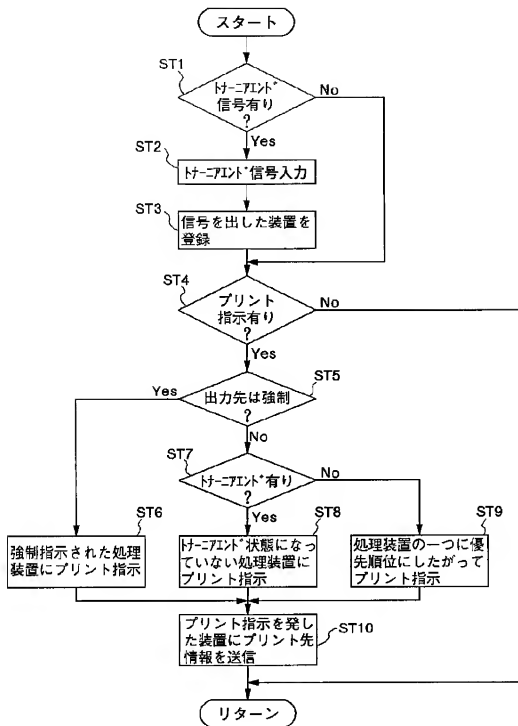
[Drawing 1]



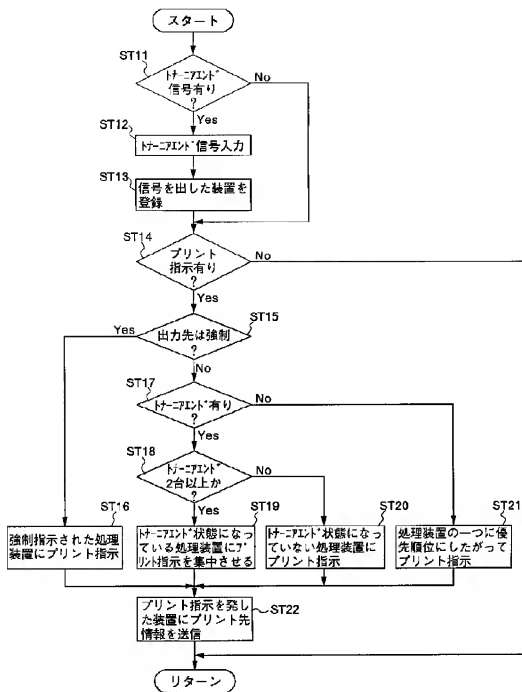
[Drawing 2]



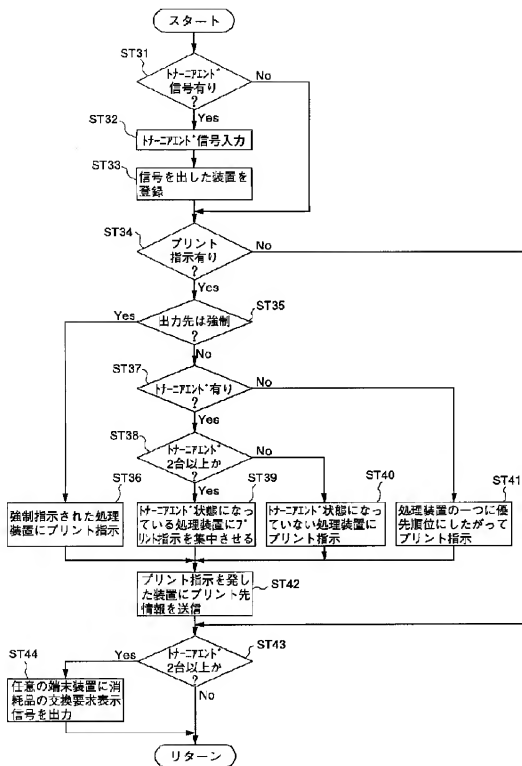
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]